

CLAIMS

1. A material for use in extracorporeal circulation, comprising a water-insoluble carrier immobilized a peptide thereto, wherein the peptide has part or all of the receptor amino acid sequence as set forth in SEQ ID NO: 1.
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2. The material for use in extracorporeal circulation according to claim 1, wherein the peptide is further inserted with at least one artificial sequence comprising a natural amino acid at an optional position.
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3. The material for use in extracorporeal circulation according to claim 1 or 2, wherein the artificial sequence comprising a natural amino acid includes at least one amino acid.
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4. The material for use in extracorporeal circulation according to any one of claims 1 to 3, wherein the artificial sequence comprising a natural amino acid is a His-Tag.
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5. A material for use in extracorporeal circulation, comprising a water-insoluble carrier immobilized thereto an antibody comprising a carbonyl stress product as an epitope.
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6. The material for use in extracorporeal circulation according to claim 5, wherein the epitope has such a structure that can be formed both in vivo and in vitro.
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7. The material for use in extracorporeal circulation according to claim 5 or 6, wherein the epitope is generally detected in body fluids of patients with diabetes mellitus in a higher amount than in those of healthy persons.
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8. An adsorbent for a diabetic complication factor, comprising a water-insoluble

carrier immobilized a ligand thereto, the ligand being capable of binding to at least one of a substance capable of binding to the peptide as claimed in any one of claims 1 to 4 and a substance capable of binding to the antibody as claimed in any one of claims 5 to 7.

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9. The adsorbent for a diabetic complication factor according to claim 8, which is the material for use in extracorporeal circulation as claimed in any one of claims 1 to 7.

10. The adsorbent for a diabetic complication factor according to claim 8, wherein the ligand immobilized to the water-insoluble carrier is a non-bioorganic molecule and comprises a cationized atom.

11. The adsorbent for a diabetic complication factor, comprising a water-insoluble carrier immobilized a ligand thereto, wherein the cationized atom according to claim 10 is a nitrogen.

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20 12. The adsorbent for a diabetic complication factor, comprising a water-insoluble carrier immobilized a ligand thereto, wherein the a functional group containing the cationized nitrogen according to claim 10 or 11 is derivable from at least one selected from the group consisting of acyclic or cyclic aliphatic compounds, aromatic compounds, and heterocyclic compounds.

25 13. The adsorbent for a diabetic complication factor, comprising a water-insoluble carrier immobilized a ligand thereto, wherein the ligand immobilized to the water-insoluble carrier according to claim 8 is a non-bioorganic molecule and comprises a reactive amine.

30 14. The adsorbent for a diabetic complication factor, wherein the ligand immobilized to the water-insoluble carrier according to claim 8 is represented

by the following formula [I].

(Water-insoluble Carrier)-(Y)a-Z [I]

5 Y: a functional group of an amide or a ketone

Z: -(cyclic compound 1)l-(open-chain compound)m-(cyclic compound 2)n-NH₂ and is a functional group having at least one carbon atom

10 a, l, m, and n: 0 or an integer of equal to or more than 1

15. The adsorbent for a diabetic complication factor according to claim 14, wherein the functional group Y in the compound [I] is bound to at least one of an amino group or a hydroxyl group of the water-insoluble carrier.

15 *so 14* 16. The adsorbent for a diabetic complication factor according to claim 14 or 15, wherein the open-chain compound in the compound [I] is a hydrocarbon compound.

20 17. The adsorbent for a diabetic complication factor according to any one of claims 14 to 16, wherein the cyclic compound 2 in the compound [I] is one of an aromatic compound or a heterocyclic compound.

25 18. The adsorbent for a diabetic complication factor according to any one of claims 14 to 17, wherein the cyclic compound 1 in the compound [I] is one of an aromatic compound and a heterocyclic compound.

19. The adsorbent for a diabetic complication factor according to any one of claims 1 to 18, wherein the immobilization to the water-insoluble carrier is made 30 through a covalent bond, a chemical bond including noncovalent bond, or

through a physical bond.

20. The adsorbent for a diabetic complication factor, wherein the water-insoluble carrier according to any one of claims 1 to 19 comprises a polysaccharide or a vinyl aromatic compound.

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21. The adsorbent for a diabetic complication factor, wherein the material or the adsorbent, according to any one of claims 1 to 20, can remove at least 40% of a carbonyl stress product.

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22. The adsorbent for a diabetic complication factor, wherein the material or the adsorbent, according to claim 21, can remove at least 30% of the substances capable of binding to the peptide as set forth in any one of claims 1 to 4 other than the carbonyl stress product.

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23. The adsorbent for a diabetic complication factor, wherein the material or the adsorbent, according to claim 20 or 21, can remove at least 30% of β 2 microglobulin.

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24. A removal unit for a diabetic complication factor, in which the material or the adsorbent as claimed in any one of claims 1 to 23 is housed.

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25. A method for removing a diabetic complication factor, wherein a fluid to be treated is brought into contact with the unit housed with the material or the adsorbent as claimed in any one of claims 1 to 24.

26. The unit and the method for the removal of a diabetic complication factor, wherein the fluid to be treated according to the claim 24 and 25 is a fluid derived from a body fluid.